

I claim:

*SUB A1*

1. A deck structure comprising:

an underlying deck structure including a plurality of joists; and

a plurality of modular building panels for engaging the plurality of joists, said building panel including a first substantially planar element being relatively inflexible and of a material selected from among the group including: stone, mineral, tile, and concrete product, and further including a second substantially planar element of a material different than the first planar element, said second planar element being disposed beneath the first planar element and coupled thereto, said second planar element having a predetermined total area, said second planar element supporting the deck panel upon the deck structure at a panel support area, said panel support area being substantially smaller than the predetermined total area, and said second planar element carrying substantially all of a tensile load imposed upon the deck panel.

2. A deck structure of claim 1 wherein the first planar element is adhesively secured to the second planar element.

3. A deck structure of claim 1 wherein the second planar element is of a composite material.

4. A deck structure of claim 3 wherein the composite material includes a material selected from the group including: KEVLAR, carbon fiber, and fiber glass.

5. A deck structure of claim 4 wherein the composite material further includes a material selected from the group including: epoxies, resins, and adhesives.

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6. A deck structure of claim 1 wherein the panel support area is proximate a periphery of the deck panel.

7. A deck structure of claim 6 wherein the panel support area is proximate a pair of opposed edges of the deck panel.

8. A deck structure of claim 1 wherein the second planar element includes a rib structure.

9. A deck structure of claim 1 wherein the second planar element defines an interior region along at least a pair of edges.

Suz 10. A deck structure of claim 1 wherein the first planar element and second planar element are equivalent in size.

11. A deck structure of claim 1 wherein the first planar element and second planar element are generally square in shape.

12. A deck structure of claim 1 wherein the panel support areas cooperate with portions of the horizontal support elements of the deck structure.

13. A floor structure comprising:

a floor underlayment; and

a plurality of modular floor products being supported by the floor underlayment, said modular floor products including a first substantially planar element of a material providing substantial compressive strength and limited tensile strength, said planar element having a pair of opposed major surfaces and further including a second substantially planar element coupled to the first planar element upon one of the major surfaces, said second planar element carrying substantially all of a tensile load imposed upon the floor product.

14. A floor structure of claim 13 wherein the first planar element is adhesively secured to the second planar element.

15. A floor structure of claim 13 wherein the second planar element is of a composite material.

16. A floor structure of claim 15 wherein the composite material includes a material selected from the group including: KEVLAR, carbon fiber, and fiber glass.

17. A floor structure of claim 16 wherein the composite material further includes a material selected from the group including: epoxies, resins, and adhesives.

18. A floor structure of claim 13 wherein the second planar element includes a rib structure.

19. A floor structure of claim 13 wherein the second planar element defines an interior region along at least a pair of edges.

20. A floor structure of claim 13 wherein the first planar element and second planar element are equivalent in size.

21. A floor structure of claim 13 wherein the first planar element and second planar element are generally square in shape.

22. A floor structure of claim 13 wherein the floor structure is an indoor structure and the floor underlayment includes a plywood sheet element.

23. A floor structure of claim 13 wherein the floor structure is an outdoor structure and the floor underlayment includes sand or compacted gravel.

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24. A deck structure comprising:

a deck frame including a series of transversely extending joists arranged at a uniform close spacing in the longitudinal direction of the deck structure; and

a series of modular panels arranged in abutting relationship overlying and secured to said joists, each panel being of a composite layered construction including a top side and a bottom side, each panel including a first layer element defining the top side and of a material providing substantial compressive strength and limited tensile strength, each panel further including a second layer element defining the bottom side and coupled to the first layer element, said second layer element of a material providing substantial tensile strength, the panels being arranged longitudinally such that they abut over said joists, the abutting ends of the panels being secured to the underlying joists by a fastening structure.

25. A deck structure according to claim 24 wherein the abutting edges of said panels are recessed to receive and be spanned by a spline element that is secured to the underlying joist by a suitable fastener.

26. A deck structure according to claim 24 wherein the abutting edges of said panels cooperate with an elongated panel support element secured to the underlying joist by a suitable fastener.

27. A deck structure according to claim 24 wherein the elongated panel support element is secured along a top surface of the underlying joist.

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28. A deck structure according to claim 24 wherein the elongated panel support element is secured perpendicular to a top surface of the underlying joist.

29. A building product for flooring an area of substructure, said building product comprising:

a plurality of modular panels arranged in abutting relationship overlying and secured to the substructure, each panel being of a composite layered construction including a top side and a bottom side, each panel including a first layer element defining the top side and of a material providing substantial compressive strength and limited tensile strength, each panel further including a second layer element defining the bottom side and coupled to the first layer element, said second layer element of a material providing substantial tensile strength.

30. A building product according to claim 29 wherein the substructure is defined by a deck structure and includes a plurality of spaced joists, and wherein the plurality of modular panels are secured to the spaced joists.

31. A building product according to claim 29 wherein the substructure is defined by a plywood underlayment structure, and wherein the plurality of modular panels are adhesively secured to the plywood underlayment structure.

32. A building product according to claim 30 wherein the panels being arranged longitudinally such that they abut over said joists, the abutting ends of the panels being secured to the underlying joists by a fastening structure.

33. A building product of claim 29 wherein the first layer element is adhesively secured to the second layer element.

34. A building product of claim 29 wherein the second layer element is of a composite material.

35. A building product of claim 34 wherein the composite material includes a material selected from the group including: KEVLAR, carbon fiber, and fiber glass.

36. A building product of claim 35 wherein the composite material further includes a material selected from the group including: epoxies, resins, and adhesives.

37. A building product of claim 29 wherein the second layer structure includes a rib structure.

38. A building product of claim 29 wherein the second layer structure defines an interior region along at least a pair of edges.

39. A building product of claim 29 wherein the first layer element and second layer element are equivalent in size.

40. A building product of claim 29 wherein the first layer element and second layer element are generally square in shape.

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